

Governance challenges in disaster response and way forward: Cyclone Amphan and recent experiences

Executive Summary

24 December 2020

Transparency International Bangladesh (TIB)

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Gratitude

Special thanks to colleagues of the Research and Policy, Civic Engagement, Outreach and Communication Divisions for their support at various stages of the research. We are also grateful to the local level data collectors and respondents who have enriched this research report through their observations at various stages.

Acknowledgment

This study has also benefited from the contribution of Climate Finance Policy and Integrity Project, funded by the Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU).

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1. Background of the Research

Natural disasters are on the rise in Bangladesh due to climate change. According to the Climate Risk Index 2019, Bangladesh ranks seventh in the countries most affected by cyclones, floods, and tidal surges. In last sixteen years, from 1991 to 2006, Bangladesh has experienced six tropical cyclones, and after that, the scenario has been changed. After that, country experienced more than 15 tropical cyclones in the 14 years during 2007 to 2020. The increased frequency of disasters, including tropical cyclones, floods, river erosion, salinity intrusion and tidal surges, have been severely affecting 35 million coastal people and 6.5 million char-land people, keeping them in vulnerable conditions. The estimated average annual loss due to cyclones and tidal surges in Bangladesh is USD 3.2 billion, which is 2.2 percent of the country's GDP. Although the number of deaths due to the natural disasters has decreased significantly but the loss and damage of resources and infrastructures is still higher even than from the less severe disasters due to weak disaster preparedness and response, lack of regular and proper maintenance of fragile embankments and dykes. It has been identified that 29.5 million coastal people were impacted in recent disasters including the super cyclone Amphan, while the number of death is 3,757 with significant loss and damage of properties. Bangladesh Meteorological Department (BMD) has categorized cyclone Amphan as a Super Cyclone (Category-5 hurricane) that hit in the coastal areas of Bangladesh on 20th May 2020 with the wind speed of 240-250 kilometer/per hour along with 10-16 feet tidal surges. Considering all these features, BMD identified the cyclone Amphan as the most devastating one in the last 20 years. Due to cyclone Amphan the damage of Sundarbans, the natural shield against cyclones, and its ecosystem along with the infrastructures insides the forest was also severe. However, deficits in ensuring good governance are the major hindrance to reduce the loss and damages caused by natural disasters and ensuring sustainability in disaster preparedness activities.

1.1. Rationale of the Research

- Being a signatory of the Sendai Framework for Disaster Risk Reduction, the Government of Bangladesh (GoB) is committed to ensure good governance in disaster management and strengthen the disaster response mechanism for reducing disaster related deaths, and economic losses and damages.
- The GoB also pledged to reduce economic losses under the target 11.5 of the Sustainable Development Goals for 2030 by adopting and implementing effective disaster risk management programs.
- Despite having the Standing Orders on Disaster 2019 along with various guidelines to deal with disasters, several reports have been published in both electronic and print media about the lack of good governance in response to the cyclone Amphan as well as previously affected other natural disasters.
- In particular, after the devastating cyclones Sidr and Aila, the GoB approved several projects with due importance for the repair and maintenance of the embankments in coastal areas to protect the lives and livelihoods. However, number of research and media reports haves revealed that those projects were not implemented properly in due time.

- The disaster preparedness and response model of Bangladesh is widely appreciated by the international communities, and also followed by some countries. However, still governance challenges exist that need to be diagnosed and addressed accordingly.
- There is a lack of in-depth research on how far the progress has been made in practicing the good governance in dealing with disasters during the last 12 years, in particular since the catastrophic cyclones of Sidr (2007) and Aila (2009), and recently hit cyclone Amphan.
- Various research of Transparency International Bangladesh (TIB) have identified deficits in governance in the disaster responses and climate change adaptations in Bangladesh in last decade.

1.2. Objectives of the Research

Major Objective

• To review the progress and the challenges of good governance in responses to recent disasters.

Specific Objectives

- To review the implementation of the agreements, laws, policies and orders related to disaster management;
- To analyze the progress and deficits of good governance in the light of collective experiences in the government responses to previous four disasters and the Amphan; and
- To provide recommendations to address the identified challenges in this study.

1.3. Scope of the Research

Under this research, disaster preparedness, relief distribution and rehabilitation activities in response to Cyclone Amphan, Sidr, Aila, Roanu, and Flood-2019 have been captured, reviewed and analyzed in light of the governance related specific indicators.

1.4. Methodology

- This study was a qualitative research, but quantitative data was also used where required.
- Under this research, evidence and experiences of TIB's previously conducted studies on governance in disaster management during cyclone Sidr, Aila, Roanu, Flood-2019, and also the cyclone Amphan have been used.
- Findings have been analyzed in the light of seven governance indicators, which are compliance with the existing legal regime, transparency, efficiency, accountability, participation, corruption and irregularities, and coordination.

Data Collection Method

- Governance in responses to cyclone Amphan related data were collected from randomly selected 13 Upazila's of the 6 affected districts. Among the extremely affected Satkhira Sadar, Shyamnagar and Ashashuni Upazilas of Satkhira district; Koyra and Dacope Upazilas of Khulna district; Amtoli and Barguna Sadar Upazilas of Barguna district were selected for data collection. Moreover, Sharsha and Chowgacha Upazilas from Jashore district; Sharonkhola and Rampal Upazilas from Bagerhat district were also selected as highly affected areas. Besides, Pirojpur Sadar and Mothbaria Upazila from Pirojpur District were also selected as moderately affected areas.
- Review of Secondary Sources of data: Disaster related laws and regulations; reports and updates of the Department of Disaster Management (DDM) on losses and damages, relief allocations; previous research reports of TIB on good governance in responses to major disasters; news from electronic and

print media on disaster response; other published reports of government and non-government organizations on disasters.

- Interview as primary sources of information: Key informant interviews (KII) were conducted with Upazila Project Implementation Officer (PIO), District Relief and Rehabilitation Officer (DRRO), Bangladesh Water Development Board officials, Representative of the Cyclone Preparedness Committee (CPP), Affected families, Local journalists, Elected public representatives, Community leaders, and CSO members.
- Data were collected from both primary and secondary sources from 18th May to 23rd December 2020.
- Findings on the observed specific responses in the light of the good governance related indicators are presented in four colors based on the compliance with the relevant laws, policies and agreements, including the Standing Order on Disaster (SOD) and guideline.

The instructions in the specific areas have been	Complied
complied/followed properly	
The instructions have been partially complied/followed in	Deficiency in the compliance
certain fields, and deficiencies in the specific areas were	
observed	
Instructions were not complied/followed in the specific areas	Not comply with
No specific information was found in the specific areas	Relevant info was not found

2. Research Findings

2.1. Climate Change and Disaster-related International Treaties: Progress and Implementation Challenges

A. Paris Agreement on Climate Change

- In Paris Agreement, developed countries committed under the Warsaw International Mechanism (WIM) as well as 'polluters pay principle' to allocate sufficient resources for developing countries to mitigate the impacts of climate change induced natural disasters and to recover from associated loss and damages.
 - However, there is a lack of institutional capacity to comprehensively assess and report the actual loss and damages that hinderring compensation-based climate finance from the developed nations.
 - Instead, the GoB is inclining gradually of introducing corporate prescribed burdensome marketbased bond and insurance systems to recover the loss and damages.
- Emphasized on forest conservation and natural resource management to ensure ecosystem-based adaptation.
 - However, despite being one of the worst climate change affected natural disasters prone countries, with the funding mostly by China, India, and Japan Bangladesh is continuing to set up coal and LNG based power plants near the environmentally critical areas including the Sundarbans. Thus, the GoB is implementing the reverse policy of natural resource protection and forest conservation.
- Increase mutual cooperation and capacity to strengthen the integrated adaptation for disaster management.
 - However, despite having strong commitments to strengthen cooperation and capacity in disaster response and climate adaptation, the Ministry of Disaster Management and Relief of Bangladesh

has no specific workplan to enhance cooperation with the signatory countries of the Paris Agreement and other national agencies.

B. Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction is adopted in March 2015, and the GoB pledged to achieve its key objectives. However, following gaps in pledge verses practices are major challenges.

- Though the framework calls for transparency in disaster risk management, there is a lack of structured guidelines and mechanisms for disclosure of the information on disaster preparedness, response, relief, and rehabilitation activities both at national and local levels.
- Despite having standing orders to implement disaster-related laws and regulations by the respective departments, such orders and laws are not followed and implemented properly to prevent irregularities and corruption in the disaster preparedness, response, and relief activities.
- Deficiency is also identified in areas of ensuring effective coordination in disaster preparedness, response, relief and rehabilitation activities at different levels (local, national, and institutional) amongst government and non-government organizations.

2.2. Disaster-related National Laws, Policies and Orders: Challenges in Compliance

A. Disaster Management Act, 2012

- Section 10(2) of the Act provides direction to appoint the Director General (DG) of the DDM. However, the selection criteria such as required qualifications, specialized knowledge, and experiences for this position are not outlined. This may lead to irregularities in the recruitment process and is a loophole to recruit the position to lead the disaster related multi-disciplinary activities with specialized knowledge.
- In section 12(1), the Act calls to establish a National Disaster Management Research and Training Institute. Nonetheless, such institute has not been established yet, and therefore, the shortage of credible research-based information on disasters prevails despite having huge demand.
- Section 29(1) of the Act mandates the citizens to lodge complaints and receive the redress of reported irregularities, negligence, or mismanagement. However, in reality, the complainants are sometimes threatened and intimidated as there are no specific guidelines and proper safeguards for the whistleblowers. Even, under this law there is no specific provision of punishment for negligence in resolving the complaints by the concerned officials.

B. National Disaster Management Policy, 2015

- The Policy calls for the innovation to update disaster risk management mechanisms, including timely dissemination of early warning systems. However, little initiative has been taken so far to upgrade the system and the early warning is disseminated at the local level using the conventional warning system that is mostly applicable for the ports and the ships in the sea. The warning system is often misleading to local people as they do not understand the real danger. As a result, citizens remain at risk with the potential of harming to their lives and properties.
- The Policy also defined that an online database consisting of reports and documents should be developed in coordination with the concerned organizations. However, no visible progress has been made in this regard even after five years of adopting the policy. As a result, there is a scarcity of information on disasters in the public domain.
- There is a clause to ensure quick delivery of cash and supplies from government storage and relief funds to various levels efficiently and transparently. However, there are some allegations of the delay to deliver relief items in remote areas, and not receiving any relief materials and receiving less than

the actual allocation. Despite allocating money for transportation allegations of illegal selling of relief materials by the concerned officials and local government representatives were also reported.

C. Cyclone Shelter Construction, Maintenance and Management Policy, 2011

- The policy specifically mentioned the obligation of conducting Environmental Impact Assessment (EIA) in the planning stage of the construction of cyclone shelters. However, in most of the cases, EIA was not conducted.
- The policy calls for the use of Geographical Information System (GIS) technology in the selection of shelter locations ensuring proper assessment of surrounding features such as the vulnerability of the shelter location, vulnerable community, population density, communication system, distance from the nearest shelter, etc. However, GIS technology is not utilized properly in selecting suitable places for shelters. Every year several cyclone shelters have been collapsing into rivers and washed away by riverbank erosion due to faulty selection of shelter locations by political elites.
- There are examples of using undue political influence and administrative power by the local elites to influence the decisions in the selection of the locations bypassing local citizens' demand. Consequently, every year several cyclone shelters have been collapsing into rivers and washed away by riverbank erosion due to faulty selection of shelter locations.
- Community people are supposed to be involved in the construction and maintenance of the shelters. However, they are hardly employed by the contractors in the construction work, and also engaging them in management. The case of using shelters for personal use by local political elites is also identified that prevents the vulnerable community from taking refuse to the shelter during disasters.

D. Standing Orders on Disaster, 2019

- Standing Orders on Disaster, 2019 provided guideline for the construction and maintenance of infrastructures, including the repair and reconstruction of damaged embankments, shelters, roads, and dams. However, non-compliance and corruption cases are widely-observed in such activities, particularly in the construction of the disaster-resilient infrastructures in coastal areas.
- Though there is an improvement but adequate facilities such as food, water, emergency medical care, and necessary security were not ensured in cyclone shelters during the disaster despite the orders.
- Allegation of corruption and irregularities in relief and rehabilitation activities are also observed, while there are deficits of resources and initiatives in taking short, medium, and long term relief and rehabilitation activities including lengthy process and delay in delivering such emergency measures.
- The order also emphasized on the inter-institutional coordination. However, the lack of coordination among government and non-government organizations in disaster preparedness, response, humanitarian assistance, and rehabilitation activities is observed.

2.3. Transparency

Table 2: State of the transparency in specific areas of disaster responses

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020
Dissemination of the disaster forecasts at the national level					
Dissemination of the disaster forecasts at the local level					
Disclosure of information on number of shelters, available facilities, and services					
Disseminate the hotline/control room number among the local community					
Disclosure of beneficiary list for relief at local level					
Disclosure of reports related to actual losses and damages					
Disclosure of reports related to relief distribution					



- Similar to the findings on previous disasters, there are allegations of not disseminating information in remote areas about the forecasts and early warnings on cyclone Amphan.
 - Besides, there was inadequate initiative to disseminate the hotline/control room number that was set up at the Upazila level for providing emergency support to the vulnerable communities during disasters.
 - A committee consisting of officials from different levels was formed with the responsibility of assessing the district and division-wise loss and damage. However, there are deficits in disclosure of such report in proper way and the beneficiary list for relief at local level is not published in the public domain.
 - Officials from specific ministries are responsible for monitoring the relief work, assessing and reporting sector-specific and district-based monitoring reports. However, they do not publish such reports at the local level.

2.4. Efficiency

Table 3: Specific areas observed under efficiency

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020	
Upgrading and modernizing the warning and the dissemination system						
Building adequate shelters						
Emergency rescue operation						Deficiency
Storing facilities of the relief materials at the local level						Non- Existence
Ensuring safety and security of the affected communities						
Ensuring emergency medical care and sanitation						
Measures in emergency repair of the damaged educational institutions						

- Deficit of 32 percent shelter is identified against the requirements of the total 22,000 shelters.
- Deficits are also identified in emergency rescue operations by local administrations and public representatives. In some cases, volunteer teams were not formed to conduct such operations in remote areas. As a result, people living in remote areas remained vulnerable to disasters.
- Deficits are also identified in storing facilities of the emergency relief materials before the disasters, while unavailability of sufficient storage facility led to the delay in distribution of relief materials during and after the disaster.
- Incidence of theft and robbery after the cyclone was reported due to lack of security measures such as
 police patrolling in some areas.
- There were deficits in measures, particularly in ensuring sufficient vehicles to evacuate people from remote and vulnerable areas along with their belongings and domestic animals.
- Lack of emergency medical facilities and sanitation support was observed in previous disasters and Amphan as well.
 - During Amphan, respondents claimed that they did not notice activities of any medical team in their areas after the disaster. Insufficient allocation of resources for transportation and limited fund for Upazila Health Complex are obstacles to respond to disasters.
 - Delay in taking initiatives to re-establish the health care system (to provide supplementary equipment, manpower at the union and ward level) was observed in the previous disasters.
 - Lack of capacity and efficiency of the Department of Public Health Engineering (DPHE) is also observed in ensuring safe water supply and sanitation in the impacted areas.
- Lack of measures is also identified to repair and rebuild educational institutions in the post-disaster period; shortage of budget to repair schools and redistribute of educational materials, and shortage of initiatives in some remote areas to bring back the poor and drop-out school students.

2.5. Accountability

Table 4: Specific areas observed for accountability

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020	
Identifying vulnerable infrastructures (e.g. embankment, shelter, road, educational institutions)						Deficiency
Repairing vulnerable infrastructures (e.g. embankments, shelters etc.) before the disaster						Not Done
Providing the accurate warning through using mass media						information was found
Determining and assessing accurate loss and damage						
Immediate measures to repair damaged infrastructures						

- Officials from BMD sometimes circulated misleading information in electronic and print media about the intensity or potential risks of the disaster, which created confusion among citizens and stakeholders engaged in disaster preparedness.
- Despite allocating about BDT 190 billion from both the development funds and the Bangladesh Climate Change Trust Fund (BCCTF) to BWDB for the coastal areas, compare to other affected areas a small portion of the resources was allocated to the most disaster-affected districts of Khulna, Satkhira, and Barguna due to political influence in fund allocation.
- There was a lack of initiatives and measures to repair most of the damaged and weak infrastructures, including the coastal embankments that were built in the 1960s and 1970s.
 - A big portion of the climate and development fund (about BDT 190 billion) is allocated for the Bangladesh Water Development Board (BWDB) to repair and maintain of weak embankments. However, there are allegations of massive corruption and irregularities in such activities.
 - Lack of institutional capacity of BWDB to utilize the allocated resources efficiently and the allegation of not using the allocated fund fully.
 - The poorly maintained infrastructures were unable to prevent tidal surges. Consequently, inundation of large areas, including human settlement, was reported during cyclone Amphan and previous disasters that left several communities and thousands of people homeless.
 - BWDB has failed to take immediate measures to repair 54 points and 233 km of damaged embankments after Amphan that allowed tidal water to enter into the community and caused waterlogging in some worse affected areas. More than 20,000 people of 18 villages of Assasuni Upazila in Satkhira District took shelter on embankments during Amphan and they are compelled to stay there since then. No effective rehabilitation measures were taken by the authority to recover their residence from saline water and to alleviate the miseries of the people, including the women, children and elderly.
 - Cyclone Amphan caused the inundation of 10,552 hectares of agricultural land and washed away 45,000 houses and 26,050 hectares of fish farms. However, concerned committees were unable to

assess the actual loss caused by inundation and overall loss and damage from the cyclone Amphan.

- Failure is also noticed to assess and take into account the long-term loss of agriculture, based on the experience of cyclones Sidr and Aila (e.g. 35% of agricultural land will not recover from the salinity-related loss of agricultural products and 20% reduction in crop productivity in the immediate year of the disaster).
- Deficiency is also observed in the planning and allocating incentive for farmers to recover the loss and damage.

"Due to long term waterlogging agricultural damages in coastal districts will be higher, let alone other direct loss and damage. After a year of the Amphan estimated agricultural loss would be approximately Tk 20.35 billion. Besides, there is a high probability that around 61,602 hectares of land will remain out of agriculture in the next two to three years due to salinity caused by waterlogging."

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020
Effectiveness of Union and Ward level Disaster Management Standing Committees					
Organize disaster response drill (<i>Mohorha</i>) regularly					
Identify the vulnerable communities evacuate them before the disaster					
Timely measures to protect household goods, livestock and storage crops					
Proper need assessment of the relief materials					
Proper allocation and distribution of relief materials					
Steps to implement the rehabilitation activities properly					
Monitoring of relief distribution and rehabilitation works					
Grievance redress mechanism in local level					

Table 5: Specific areas of observation for accountability

• The Standing Committees on Disaster Management at the Ward and Union levels are found nonfunctional in some areas and failed to ensuring the preparation of shelters, food supply, accommodation, and other facilities in shelters before a disaster.

- Despite government orders, disaster response drills are not organized regularly with the involvement of relevant stakeholders.
- Lack of initiative of the concerned administration and public representatives is also observed to evacuate vulnerable people from the remote char-lands, islands, and haors.
- In most cases, lack of adequate facilities in shelters is also reported by the affected people.
 - People could not bring their domestic animals and necessary stuff due to the unavailability of space in the shelters and transport supports.
 - People were remained hungry in some areas as adequate food was not ensured.
 - Lack of proper assessment of food for children and the elderly people.
 - Lack of separate living rooms and latrines for women, children, the elderly, and physically challenged people are also observed.
 - Security risks, including unavailability of electricity and lighting system at night were observed in several shelters.
- In most cases, local administration and public representatives did not assess the relief needs, and often conduct such assessments without physically visiting the affected areas and families. Failure to conduct a proper assessment of relief needs is also found, which led to food crises in some study areas during disasters.
- Inadequate allocation of relief is also observed, which resulted from the arbitrary assessment of the number of affected people and their needs.
 - Cash, rice, and corrugated iron sheet have been allocated without considering the actual number of victims and households.
 - There are also allegations of over-allocation in less-affected areas and less allocation in more-affected areas due to political considerations.
- Respondents also reported that officials responsible for monitoring relief distribution and rehabilitation activities have not played their due role and did not visit the affected areas. As outlined in the Standing Orders on Disaster, 'tag officers' and district officials were assigned to supervise and monitor such activities.
- Proper attention was not given to rehabilitate affected people. Deficiency is also observed in giving priority to renovate the houses of the completely affected families along with the absence of the emergency measures to restore their livelihood.
- In Amphan, including Sidr and Aila, people had to stay in open spaces, often unprotected, in absence of effective rehabilitation measures.
- There is no effective mechanism to lodge complaints regarding the distribution of relief. While respondents alleged that the Upazila administration has not taken cognizance of the complaints regarding the distribution of relief and in some cases, whistleblowers have been harassed and intimidated.

2.6. Participation

Table 6: Specific areas of observation for participation

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020	
Consideration of public opinion in selecting shelter location before construction						
Participation of local people in construction, maintenance, and management of the shelter						Deficiency
Participation of local people in construction, maintenance, and management of embankments						Non Participation
Participation of local people in relief distribution and rehabilitation activities						

- It is proven from prior application by the BWDB that the integrated participatory water management (IPWM) model is more effective and cost-saving. However, BWDB left that and does not apply the model in construction and maintenance works of coastal embankments and dams. Key informants claimed that as the scope of corruption could be reduced drastically that's why, BWDB does not follow the model.
- Cases of ignoring local people's opinions are reported in disaster-related construction work.
 - A shelter was built near an engineer's house in Gulishakhali of Barguna, ignoring the opinions of the local UP chairman and the affected community. In selecting the location, they did not consider the vulnerability of the nearby fishing community those have been living in an island like place, situated on the other side of the river.
 - Locational vulnerability and condition of the local communication system were also not considered in the decision-making process.
- Like other studies of TIB on disasters, respondents informed that local poor people are not hired as labor in the construction of shelters and dams, and contractors hire people from outside to hide issues of corruption in the construction works.

2.7. Corruption and Irregularities

Table 7: Specific areas of observation for corruption and irregular

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu -2016	Flood- 2019	Amphan- 2020
Irregularities and corruption in the construction of disaster resilient infrastructure (embankment, dams, roads, shelters)					
Undue political influence and consideration of personal interest in the construction of shelters and embankment					
Use of shelter for personal purposes					
Undue political interference in distribution of relief					



- There are examples of using undue political and administrative power and influence by the local elites and politicians
 - Several shelters have been washed away due to riverbank erosion recently in Barisal, Lakshipur, Chandpur, and some other places of the country.
- Similar to the findings of the previous studies, allegation of irregularities in beneficiary selection and distribution of relief is reported by the respondents in Amphan response.
 - Nepotism and arbitrary selection of beneficiaries to distribute relief materials immediately after the disasters.
 - Local people alleged that local government representatives distributed relief and rehabilitation materials such as cash, corrugated iron sheets among the beneficiaries on political consideration, which were allocated to repair the damaged houses as part of post-Amphan rehabilitation activities.
 - Allegations of taking undue payments and bribe from beneficiaries to allocate corrugated iron sheet and money to repair the damaged houses
- Allegation of irregularities is also reported in print and electronic media in the procurement process of the DDM in the financial year 2019-2020.
 - Procurement guideline was not followed to purchase dry food.
 - A contractor was not shortlisted due to lack of experience in the relevant field and not fulfilling the requirements mentioned in the tender documents. However, the contractor was later awarded another contract by the DDM.
 - A contractor was selected and awarded despite an ongoing lawsuit against the organization by Anti Corruption Commission (ACC) for supplying low quality corrugated iron sheets for relief and rehabilitation work.

- Cases of corruption and irregularities of BWDB are also reported in the maintenance and renovation of coastal embankments.
 - Allegations of collusion among BWDB officials, contractors, and local political elites were also identified in resolving 360 criminal cases related to cutting embankment for shrimp farming in Ashashuni Upazila. As a result, such illegal cutting is still ongoing.
 - Besides, allegations of siphoning project money by the BWDB officials in collusion with contractors, particularly to award construction work to the preferred contractors through violating the procurement process.
 - A specific allegation was reported where a tender was awarded to a contractor for raising the height of an old embankment to 3 feet at Gabura Union of Shyamnagar. However, the work was not done according to the work order and there is an allegation of embezzlement of project money against BWDB officials and contractors.
 - The allegation of the use of low-quality concrete blocks and embezzlement in collusion of BWDB project official and contractor was reported in the construction of a dam in Charfashion and Monpura of Bhola.
 - Misappropriation and embezzlement of funds in river excavation projects in Khulna and Satkhira were widely reported in different electronic and print media.
- Various irregularities and corruptions are also reported in the repair and maintenance of coastal embankment and dams. There are specific allegations of financial loss of BDT 0.0026 to 1.40 billion due to corruption in four projects related to construction, renovation, and maintenance of coastal infrastructures. As a percentage of the project budget, these financial losses in each project ranges from a low of 14.36% to a high of 76.92%. Table-8 provides some examples of irregularities and corruption of BWDB in disaster management related activities in coastal areas;

Project/ Activity Type	Corruption type	Time- frame	Total budget of the project (billion tk)	Financial loss due to corruption (billion tk)	Financial loss due to corruption (%)
Water management project	Violation of public procurement law, lack of related experience and recruiting a parliament members wife's organization	2011	9.75	1.40	14.36
Polder construction projects in Barguna and Patuakhali	Embezzlement of money with a coalition of contractor and project officials	2016	0.7203	0.1683	23.37
Manu river irrigation and pump house rehabilitation	Embezzlement of project funds by influencing procurement process and collusion of contractor and project officials	2019	0.5483	0.3442	62.78
Embankment construction at Koira of Khulna	Embezzlement of money without completing the whole project work	2020	0.0026	0.0020	76.92

Table 8: Corruption in coastal infrastructure construction, repair and maintenance

2.8. Coordination

 Table 9: Specific areas of observation for coordination

Specific areas of observation	Sidr- 2017	Aila- 2009	Roanu- 2016	Flood- 2019	Amphan- 2020	
Inter-institutional coordination in construction of disaster resilient infrastructure						Deficiency
Coordination among government and non-government organizations and volunteers in disaster preparedness						Non- Existence
Coordination among government and non-government organizations in allocation and distribution of relief						I

- There are deficits in coordination in works related to the construction and repair of disaster-resilient infrastructures.
 - Despite involving several government agencies, lack of coordination exists in developing uniform and standard design of shelters, ensuring proper facilities, and maintenance of shelters.
 - There are also cases that representatives of local people's initiated repairing a damaged embankment in Koyra during Amphan. However, the initiative was failed due to not paying the promised resource by the local MP, and lack of cooperation from the local administration.
- Frequent allegations of coordination gaps between local administration and the local government representatives are reported in disaster response related activities.
 - Delay in delivery of the allocated relief.
 - In some cases, the same beneficiary received relief more than once, while others did not receive much needed relief despite affected heavily due to Amphan.
- Lack of coordination has also been observed in properly assessing the actual loss and damage caused by disasters, including Amphan, due to lack of proper coordination among the responsible organizations.
 - DDM estimated the total agricultural loss of BDT 2.19 billion in Amphan while the Ministry of Agriculture presented the figure 54.34 percent less than that of DDM.

3. Overall Observation

- Lack of effective initiatives is observed to comply with international pledges and agreements, national laws, policies, and orders related to disaster management.
- From the central level, due to a lack of institutional coordination in dissemination misleading information on the warning has been provided in some areas and that created confusion and misunderstanding about the emergency warnings at the local level.
- Accused concerned government agencies have not been held accountable for irregularities and corruption in the construction and maintenance of disaster-related infrastructures (shelters, dams, roads, etc.). As a result, public suffering and economic losses have increased significantly.
- Due to lack of transparency, accountability, equity, and public participation, the chance of corruption and irregularities have increased in the construction of disaster-resilient infrastructures; relief, and rehabilitation work. Due to such governance deficits, the vulnerability of coastal people has increased

significantly. Moreover, the chance of deprivation of actually affected households from disaster management related benefits has increased.

- Lack of capacity and coordination among inter-agencies in identifying the actual needs for relief and rehabilitation and assessing the loss and damages.
- Lack of measures and proper planning for immediate and long-term rehabilitation or adaptation. As a result, a section of the extremely poor and vulnerable group of people is migrating to nearby towns and capitals. And new climate-driven displacement and internal migration is supposed to increase.
- The recommendations of previous studies on good governance in disaster management have not been considered, and therefore, the recurrence of previous incidents of governance deficits and failure is observed in recent disasters including Amphan.

4. Recommendations

- 1. Upgrade and modernize the disaster warning system and, to avoid confusion, disseminate the warning carefully in a communicable way to the general people.
- 2. Ensure timely dissemination of early warnings and security-related messages to the local community in remote and vulnerable areas with the highest priority.
- 3. Provide priority to the most vulnerable individuals, households and geographical areas to allocate, and distribute relief and funds; rehabilitation in a transparent manner.
- 4. Ensure disclosure of information on relief and rehabilitation in national and local levels and availability of the disaster related information in the public domain.
- 5. Ensure participation of local level committees, volunteers, and concerned stakeholders in the emergency disaster preparedness and response activities to mitigate disaster risk with proper consideration of local vulnerabilities.
- 6. Ensure adequate shelters with special facilities for women, children, the elderly, and physically challenged people.
- 7. Ensure and provide adequate food, water, sanitation, and emergency medical services at the shelters considering the number of people taking refuse to shelters during disasters.
- 8. Ensure the construction of disaster-resilient infrastructures (shelters, dams, and polders) and renovate and reconstruct them applying the community-led participatory approach by engaging local government institutions.
- 9. Ensure accountability to stop corruption, irregularities, delay, and misuse of resources in disaster management activities and provide priority in implementing disaster-resilient infrastructure project in most vulnerable coastal districts.
- 10. Ensure judiciary action and exemplary punishment to the accused responsible one or the concerned departments through transparent investigation of the irregularities and corruption.
- 11. Taking time-bound and sustainable measures for effective planning and implementation of rehabilitation activities to restore the livelihoods of the families affected by the disasters, and to create new livelihood opportunities through building their capacity to deal with the disasters.
- 12. Adopt a master plan by integrating the knowledge and experiences of countries in water resource management, like the Netherlands, to deal with natural disasters and to protect the coastal regions successfully.
